

WHAT IS CLAIMED IS:

1. A turbine comprising:

a wheel having 60 broach slots with the wheel material between each adjacent pair of slots forming a wheelpost, each one having an interleaved system of fillets and tangs; and

sixty buckets each having a corresponding interleaved system of fillets and tangs so that said 60 buckets can be fitted one to one into said 60 broach slots on said wheel;

said interleaved system of fillets and tangs on said buckets and wheelposts reducing stresses acting on said fitted buckets and wheelposts.

2. A turbine as claimed in claim 1, each one of said buckets and wheelposts having three interleaved tangs and fillets.

3. A turbine as claimed in claim 2, wherein each of said buckets having a bottom tang formed from curved surfaces having more than one radius of curvature.

4. A turbine as claimed in claim 3, wherein each of said buckets further includes at least one straight surface.

5. A turbine as claimed in claim 2, wherein each of said wheelposts having a bottom fillet formed from curved surfaces having more than one radius of curvature.

6. A turbine as claimed in claim 5, wherein each of said wheelposts further includes at least one straight surface.

7. A turbine as claimed in claim 3, wherein said curved surfaces have radius of curvatures of .3762 inches and .5556 inches.

8. A turbine as claimed in claim 5, wherein said curved surfaces have radius of curvatures of .3822 inches and .5616 inches.

9. A turbine as claimed in claim 1, wherein an outer tang edge of each one of said wheelposts being scalloped so as to reduce the weight of said wheel.

10. A turbine comprising:

a wheel having a plurality of broach slots, each one having an interleaved system of fillets and tangs; and

a plurality of buckets each having a corresponding interleaved system of fillets and tangs so that said plurality of buckets can be fitted, one to one, into said plurality of broach slots on said wheel;

wherein said interleaved system of fillets and tangs on said buckets and wheelposts act to reduce stresses acting on said fitted buckets and wheelposts, the fillets and tangs of said interleaved system of fillets and tangs each being formed by a combination of curved and straight surfaces;

wherein the fillets formed on said plurality of buckets have angles ranging from  $50^{\circ}$  to  $57^{\circ}$ .

11. A turbine comprising:

a wheel having a plurality of broach slots, each one having an interleaved system of fillets and tangs; and

a plurality of buckets each having a corresponding interleaved system of fillets and tangs so that said plurality of buckets can be fitted, one to one, into said plurality of broach slots on said wheel;

wherein said interleaved system of fillets and tangs on said buckets and wheelposts act to reduce stresses acting on said fitted buckets and wheelposts, the fillets and tangs of said interleaved system of fillets and tangs each being formed by a combination of curved and straight surfaces;

wherein the fillets formed on said plurality of wheelposts have angles ranging from  $50^{\circ}$  to  $57^{\circ}$ .

12. A turbine as claimed in claim 11, wherein the fillets formed on said plurality of buckets have angles ranging from  $50^{\circ}$  to  $57^{\circ}$ .

13. A turbine as claimed in claim 10, each one of said buckets and wheelposts having three interleaved tangs and fillets.

14. A turbine as claimed in claim 13, wherein each of said buckets having a bottom tang formed from curved surfaces having more than one radius of curvature.

15. A turbine as claimed in claim 14, wherein each of said buckets further includes at least one straight surface.

16. A turbine as claimed in claim 10, wherein each of said wheelposts having a bottom fillet formed from curved surfaces having more than one radius of curvature.

17. A turbine as claimed in claim 16, wherein each of said wheelposts further includes at least one straight surface.

18. A turbine as claimed in claim 14, wherein said curved surfaces have radius of curvatures of .3762 inches and .5556 inches.

19. A turbine as claimed in claim 16, wherein said curved surfaces have radius of curvatures of .3822 inches and .5616 inches.

20. A turbine as claimed in claim 10, wherein a top surface of each one of said wheelposts being scalloped so as to reduce the weight of said wheel.

21. A turbine as claimed in claim 11, each one of said buckets and wheelposts having three interleaved tangs and fillets.

22. A turbine as claimed in claim 21, wherein each of said buckets having a bottom tang formed from curved surfaces having more than one radius of curvature.

23. A turbine as claimed in claim 22, wherein each of said buckets further includes at least one straight surface.

24. A turbine as claimed in claim 21, wherein each of said wheelposts having a bottom fillet formed from curved surfaces having more than one radius of curvature.

25. A turbine as claimed in claim 11, wherein each of said wheelposts further includes at least one straight surface.

26. A turbine as claimed in claim 22, wherein said curved surfaces have radius of curvatures of .3762 inches and .5556 inches.

27. A turbine as claimed in claim 24, wherein said curved surfaces have radius of curvatures of .3822 inches and .5616 inches.

28. A turbine as claimed in claim 11, wherein a top edge of each one of said wheelposts being scalloped so as to reduce the weight of said wheel.

29. A bucket for insertion into a wheelpost of a turbine rotor, said bucket being formed from interleaved fillets and tangs which complement interleaved fillets and tangs formed in the wheelpost, angles of the fillets formed in bucket ranging from 50° to 57°.

30. A bucket as claimed in claim 29, said bucket having three interleaved tangs and fillets.

31. A bucket as claimed in claim 30, said bucket having a bottom tang formed from curved surfaces having more than one radius of curvature.

32. A bucket as claimed in claim 31, said bucket further including at least one straight surface.

33. A bucket as claimed in claim 31, said curved surfaces having radii of curvatures of .3762 inches and .5556 inches.

34. A bucket as claimed in claim 30, said bucket having an upper tang formed from curved surfaces having more than one radius of curvature.

35. A bucket as claimed in claim 31, said bucket having an upper tang formed from curved surfaces having more than one radius of curvature.

36. A bucket as claimed in claim 34, said bucket further including at least one straight surface.

37. A bucket as claimed in claim 30, said bucket having an intermediate tang formed from curved surfaces having more than one radius of curvature.

38. A bucket as claimed in claim 31, said bucket having an intermediate tang formed from curved surfaces having more than one radius of curvature.

39. A bucket as claimed in claim 35, said bucket having an intermediate tang formed from curved surfaces having more than one radius of curvature.

40. A bucket as claimed in claim 37, said bucket further including at least one straight surface.